[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[NRC-2022-0116]

Spent Fuel Heat Generation in an Independent Spent Fuel Storage Installation

AGENCY: Nuclear Regulatory Commission.

ACTION: Regulatory guide; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing Revision 3 to Regulatory Guide (RG) 3.54, "Spent Fuel Heat Generation in an Independent Spent Fuel Storage Installation." This RG includes methods acceptable to the NRC staff for calculating spent nuclear fuel heat generation rates for use for an Independent Spent Fuel Storage Installation. Revision 3 incorporates corrections to Appendix A, Table A-1 that were erroneously recorded in the previous revision (Revision 2 to this RG). In general, this revision presents an up-to-date methodology for determining heat generation rates and it also allows loading of higher burnup fuel by using more accurate methods for decay heat calculations.

DATES: Revision 3 to RG 3.54 is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2022-0116** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to https://www.regulations.gov and search for Docket ID **NRC-2022-0116**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individuals listed in the "For Further Information Contact" section of this document.
- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at https://www.nrc.gov/reading-rm/adams.html. To begin the

search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document.

- **NRC’s PDR:** You may examine and purchase copies of public documents, by appointment, at the NRC’s PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8:00 a.m. and 4:00 p.m. (ET), Monday through Friday, except Federal holidays.

Revision 3 to RG 3.54 may be found in ADAMS under Accession No. ML22066B275.

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SUPPLEMENTARY INFORMATION:

I. Discussion

The NRC is issuing an administrative revision to an existing guide in the NRC’s “Regulatory Guide” series. Regulatory guides were developed to describe and make available to the public information and methods that are acceptable to the NRC staff for implementing specific parts of the agency’s regulations, techniques that the staff uses in

evaluating specific issues or postulated events, and data that the staff needs in its review of applications for permits and licenses. The NRC typically seeks public comment on a draft version of a RG by announcing its availability for comment in the *Federal Register*. However, as explained in NRC's Management Directive (MD) 6.6 "Regulatory Guides," (ADAMS Accession No. ML110330475) the NRC may directly issue a final RG without a draft version or public comment period if the changes to the RG are non-substantive.

The NRC is issuing Revision 3 of RG 3.54 directly as a final RG because the changes between Revision 2 and Revision 3 are non-substantive. This revision (Revision 3) like Revision 2 presents an up-to-date methodology for determining heat generation rates for both pressurized-water reactor and boiling water reactor fuel and provides greater flexibility (fewer restrictions). It allows loading of higher burnup fuel by using more accurate methods for decay heat calculations by covering a wider range of fuel characteristics, including operating history. Appendix A provides an example that illustrates the use of the RG for calculating the decay heat generation rate for a spent fuel assembly. However, Appendix A to Revision 2 of RG 3.54 included erroneous data.

Revision 3 of RG 3.54 is issued to incorporate corrections for Appendix A, Table A-1 showing the correct irradiation data for an assembly C-64. These corrected data are as follows: 1) the last column of the Table A-1, the third row (operating (days)) is now recorded as 3.39E+02, 2) the fourth row (downtime (days)) is recorded as 1.633E+03, 3) the fifth row (cumulative burnup (MWd/KgU)) is recorded as 3.9384E+01, and 4) the sixth row (Power (W/KgU)) is recorded as 2.8378E+04.

II. Backfitting, Forward Fitting, and Issue Finality

The NRC staff may use this RG as a reference in its regulatory processes, such as licensing, inspection, or enforcement. However, the NRC staff does not intend to use the guidance in this RG to support NRC staff actions in a manner that would constitute backfitting as that term is defined in Section 50.109 of title 10 of the *Code of Federal Regulations* (10 CFR), "Backfitting," and as described in NRC MD 8.4, "Management of

Backfitting, Forward Fitting, Issue Finality, and Information Requests" (ADAMS Accession No. ML18093B087), nor does the NRC staff intend to use the guidance to affect the issue finality of an approval under 10 CFR Part 52. The staff also does not intend to use the guidance to support NRC staff actions in a manner that constitutes forward fitting as that term is defined and described in MD 8.4. If a licensee believes that the NRC is using this RG in a manner inconsistent with the discussion in the Implementation section of RG 3.54, then the licensee may file a backfitting or forward fitting appeal with the NRC in accordance with the process in MD 8.4.

III. Congressional Review Act

This RG is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

IV. Submitting Suggestions for Improvement of Regulatory Guides

Revision 3 of RG 3.54 is being issued without public comment. However, a member of the public may, at any time, submit suggestions to the NRC for improvement of existing RGs or for the development of new RGs to address new issues. Suggestions can be submitted on the NRC's public website at https://www.nrc.gov/reading-rm/doc-collections/reg-guides/contactus.html. Suggestions will be considered in future updates and enhancements to the "Regulatory Guide" series.

Dated: May 13, 2022.

For the Nuclear Regulatory Commission.

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